
फ्लोर पॉलिश करने वाली मशीन —
विशिष्टि

(पहला पुनरीक्षण)

Floor Polishing Machines —
Specification

(First Revision)

ICS 91.220

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भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली – 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.gov.in www.standardsbis.in

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Construction Plant and Machinery Sectional Committee had been approved by the Mechanical Engineering Division Council.

This Indian Standard was first published in 1965. The first revision has been taken up to keep pace with the latest technological developments and international practices. In this revision following major changes have been made:

- a) Clauses **4**, **6.5**, **11.1** and **11.2** have been modified; and
- b) A reference clause has been added mentioning the latest version of all the referred standards.

Grinding and polishing of wearing surfaces is an important aspect in the construction of superior floor finishes. Machine grinding is increasingly replacing manual grinding because of its advantages in respect of the quality of finish and economy in time. This standard has been prepared with a view to assist the manufacturers and users of floor polishing machines in obtaining machines capable of giving satisfactory and efficient service.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FLOOR POLISHING MACHINES — SPECIFICATION

(First Revision)

1 SCOPE

This standard lays down the requirements for materials, sizes, construction and performance of floor polishing machines.

2 REFERENCES

The standards listed at Annex A contain provisions, which through their reference, in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibilities of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Pressure Weight — An arrangement to increase the pressure exerted by the revolving disc on the surface to be ground and polished.

3.2 Sweep of the Revolving Disc — Diameter of the circle traced by the extreme tips of stones held in the stone holder.

3.3 Working Face — The portion of the machine in contact with the surface to be ground and polished.

4 MATERIALS**4.1 Steel Sheet**

Mild steel sheet shall conform to IS 1079.

4.2 Steel Sections, Bars and Rivet

4.2.1 Steel sections and bars shall conform to IS 2062.

4.2.2 Rivet bars shall conform to IS 1148.

4.3 Steel Tubes

Steel tubes shall conform to IS 1239 (Part 1).

4.4 Grey Iron Castings

Grey iron castings shall be of suitable grade conforming to IS 210.

4.5 Springs

Springs shall be manufactured from a suitable grade of wire conforming to IS 4454 (Part 1).

4.6 V-Belts

V-belts for belt drives shall conform to IS 2494 (Part 1).

4.7 Bolts and Nuts

Bolts and nuts shall conform to the appropriate requirements of relevant Indian Standards.

4.8 Other materials to be used in the construction of the machine shall conform to appropriate Indian Standards.

5 SIZE

5.1 Size of the machine shall be indicated by the sweep of the revolving disc in centimetres.

5.1.1 The standard nominal sizes shall be as below:

- a) 60 cm; and
- b) 75 cm.

5.1.2 Sizes other than those specified in **5.1.1** may be supplied if agreed between the purchaser and the manufacturer.

5.2 The overall width and length of the floor space occupied by the machine shall not be more than the values as given in Table 1.

Table 1 Width and Length of Floor Space
(Clause 5.2)

Sl No.	Size of Machine	Width, <i>Max</i>	Length, <i>Max</i>
	(cm)	(cm)	(cm)
(1)	(2)	(3)	(4)
i)	60	65	95
ii)	75	80	125

6 CONSTRUCTION

6.1 General

The machine shall be of suitable construction to ensure smooth working on the surface to be polished. It shall be capable of easy manoeuvrability and easy balancing while in operation without undue effort on the part of the operator.

6.1.1 It shall be designed to be capable of working close to the vertical surfaces surrounding the area to be polished and shall not leave more than a 25 mm wide strip for hand grinding.

6.2 All the moving parts shall be assembled on the ball or roller bearings conforming to the appropriate requirements of relevant Indian Standards. The bearings shall be fully enclosed so as to be dustproof.

6.3 Frame

The frame of the machine shall be constructed of a 25 mm nominal bore tube conforming to 4.3 or any other mild steel section of equivalent strength, suitably bent to form a strong support for the wheels and other parts of the machine.

6.3.1 Handle

The machine shall be provided with a strong handle of adjustable height. The handle shall be provided with insulated grips and shall be of suitable design to prevent discomfort or injury to the operator during operation.

6.4 Wheels

The machine shall be provided with not less than two wheels complete with the ball or roller bearings capable of free movement and easy steering. The wheels shall be constructed of mild steel or cast iron and shall be of the disc type or any other suitable design to ensure adequate strength; they shall be fitted with metal rims or solid rubber tyres.

6.5 Rubbing Discs

6.5.1 The working face of the machine shall be provided with not less than two revolving discs of cast iron or steel. Each disc shall have firmly attached to it a stone holder capable of securely holding rectangular or triangular (in plan) shaped grinding stones. The

stone holders shall be replaceable and shall allow easy replacement and removal of stones, or their substitution by felt bobs when so required. Stone holders shall revolve firmly on the revolving discs and shall have an intermeshing movement with each other.

While the machine is in operation all the grinding stones shall revolve in a horizontal plane and there shall not be any slip between the grinding stone and the stone holder or the stone holder and the revolving disc.

Speed of rotation and the sweep of the revolving discs and the number of grinding stones on each stone holder shall not be less than the values specified in Table 2. A suitable arrangement shall be provided to alter the speed of rotation as required.

6.5.2 While the machine is in operation, each rubbing disc shall exert on the floor a minimum pressure as given in Table 3. Removable pressure weight shall also be provided in the machine to exert additional adjustable pressure on the disc as required.

Table 3 Minimum Pressure on the Floor by Rubbing Disc
(Clause 6.5.2)

SI No.	Size of Machine (cm)	Weight of Disc Without Pressure Weight (kg)
(1)	(2)	(3)
i)	60	115
ii)	75	200

6.6 Splash Guard

Adjustable splash guard of suitable design shall be provided around the working face of the machine to prevent the splashes from spoiling the surrounding surfaces.

6.7 Water Tank

6.7.1 A suitable water tank shall be mounted on the frame of the machine to ensure a continuous controlled water supply for watering the floor while grinding is in progress. Fingertip water reed control shall be provided at a convenient position near the handles of the machine.

Table 2 Rubbing Disc Details
(Clause 6.5.1)

SI No.	Size of Machine (cm)	Speed of the Disc (rev/min)	Sweep of Disc (cm)	No. of Grinding Stones per Stone Holder
(1)	(2)	(3)	(4)	(5)
i)	60	1075	60	3
ii)	75	1200	75	6

6.7.2 The tank shall be of welded mild steel construction and shall be suitably protected against rusting.

6.8 Lifting and Towing Arrangements

The machine shall be fitted with suitable means for attachment of chains and ropes required for lifting without appreciable deflection in any part. A towing bar of adequate strength shall also be provided.

6.9 Finishing

All exposed parts of the machine shall be given protective anti-corrosive treatment to prevent them from rusting or deterioration due to contact with cement or dirt.

7 POWER UNIT

7.1 The machine shall have a suitable power unit such as an electric motor or an internal combustion engine. Suitable arrangements shall be provided to protect the power unit from splashes, dirt and mortar slurry.

7.2 For machines operated by an electric motor, a fully enclosed safety type quick to make and break switch shall be provided at a convenient position near the handles of the machine.

7.3 The internal combustion engine, electric motor and other electrical equipment shall conform to relevant Indian Standards.

8 LUBRICATION

8.1 Adequate arrangements shall be provided to facilitate proper and easy lubrication of different parts. Lubrication points shall be conspicuously marked and suitably guarded to prevent them from getting clogged with dirt, mortar slurry, etc, formed during the operation of the machine.

9 SAFETY REQUIREMENTS

9.1 The moving parts shall be suitably enclosed to guard against accidents.

9.2 Suitable earthing and safety arrangements shall be provided for electric motors and components in accordance with the requirements of relevant Indian Standards and safety regulations.

10 TOOLS

A strong toolbox with lock and key, containing the necessary tools for normal adjustments and lubrication of the machine together with instructions shall be provided with the machine. Provisions shall be made for affixing the toolbox on the machine.

11 MARKING PLATE

11.1 Each machine shall have a plate firmly attached to some part not easily removable. The plate shall have marked on it the following particulars:

- a) Size of the machine;
- b) Characteristics of the power unit, that is, electric motor or an internal combustion engine, regarding:
 - 1) output power rating;
 - 2) voltage, phase and cycle current;
- c) Manufacturer's name or trade-mark;
- d) Manufacturer's reference number of the machine; and
- e) Month and Year of manufacture.

11.2 BIS Certification Marking

The product(s) conforming to the requirements of this Standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
1079 : 2017	Hot rolled carbon steel sheet, plate and strip — Specification (<i>seventh revision</i>)	1239 (Part 1) : 2004	Steel tubes, tubulars and other wrought steel fittings — Specification: Part 1 Steel tubes (<i>sixth revision</i>)
2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (<i>seventh revision</i>)	4454 (Part 1) : 2001	Steel wire for mechanical springs — Specification: Part 1 Cold drawn unalloyed steel wire (<i>third revision</i>)
1148 : 2009	Steel rivet bars (medium and high tensile) — For structural purposes (<i>fourth revision</i>)	2494 (Part 1) : 1994	V-Belts-Endless V-Belts for industrial purposes: Part 1 General purpose — Specification (<i>second revision</i>)
210 : 2009	Grey iron castings € Specification (<i>fifth revision</i>)		

ANNEX B*(Foreword)***COMMITTEE COMPOSITION**

Construction Plant and Machinery Sectional Committee, MED 18

<i>Organization</i>	<i>Representative(s)</i>
Directorate General of Quality Assurance, Ministry of Defence, New Delhi	BRIG P. K. SHRIVASTAVA (Chairman)
AIMIL Limited, New Delhi	SHRI ROHITASH BARUA SHRI K. K. V. YASAS (<i>Alternate</i>)
Airports Authority of India, New Delhi	SHRI G. K. CHOUDHARY SHRI R. L. SHARMA (<i>Alternate</i>)
Ammann Apollo India Private Limited, Gujarat	SHRI GIRISH DIXIT SHRI ASHISH PATEL (<i>Alternate I</i>) SHRI MANAN RAJPURA (<i>Alternate II</i>) SHRI PRASAD DAYAL (<i>Alternate III</i>) SHRI GEETESH MAKADIA (<i>Alternate IV</i>) SHRI ARPAN PATEL (<i>Alternate V</i>)
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Ajax Engineering Private Limited, Bengaluru	SYED MOHAMMED RIAZ NAWAZ SHRI JORLIN P. V. (<i>Alternate</i>)
B G Shirke Construction Technology Limited, Pune	SHRI A. D. BHOSALE SHRI SUNIL KEDAR (<i>Alternate</i>)
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Central Water Commission, New Delhi	SHRI ATUL JAIN SHRI YOGESH PAITHANKAR (<i>Alternate</i>)
Chief Quality Assurance Establishment, Ministry of Defence, New Delhi	COL SURESH K. LT COL A. K. MAURYA (<i>Alternate</i>)
Directorate General Border Roads, New Delhi	SHRI P. R. RAY COL MANJUNATH BT (<i>Alternate</i>)
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Epiroc Mining India Limited, Nashik	SHRI VENKATESAN BASHYAM SHRI MUTTANNA JAPANNANAVAR (<i>Alternate</i>)
IRCON International Limited, New Delhi	SHRI RANDHIR GUPTA SHRI S. K. RAY (<i>Alternate</i>)
Indian Construction Equipment Manufacturers Association, New Delhi	SHRI K. V. KRISHNAMURTHY
Jaypee India Limited, Kolkata	SHRI KUMAR M. MEHTA SHRI RAHUL KUMAR TEOTIA (<i>Alternate</i>)
John Deere India Private Limited, Mumbai	SHRI KARTHIK KALIAPPAN SHRI RAJ ANAND (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
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Larsen and Toubro Limited, Bengaluru	SHRI K. KESHAVA SHRI M. SURESH KUMAR (<i>Alternate</i>)
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National Council for Cement and Building Materials, Faridabad	SHRI KAPIL KUKREJA SHRI SAURABH BHATNAGAR (<i>Alternate</i>)
Shapoorji Pallonji And Company Private Limited, Mumbai	SHRI NEERAJ KAPOOR
Schwing Stetter (India) Private Limited, New Delhi	SHRI RAJEEV SHALIA SHRI VARADHARAJAN R. (<i>Alternate</i>)
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In Personal Capacity (<i>G-99, Pushkar Enclave, Paschim Vihar, New Delhi</i>)	SHRI HANS RAJ
In Personal Capacity (<i>Flat No. 3052, Prestige Shantiniketan, Whitefield main road, Bengaluru</i>)	SHRI S. N. MAHAJAN
In Personal Capacity (<i>Flat No. 64, Pocket D-10, Sector 7, Rohini, New Delhi</i>)	SHRI RAJENDRA JEE
In Personal Capacity (<i>D-24, Amar Colony, New Delhi</i>)	SHRI SATANDER KUMAR
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Member Secretary

SHRI LOKRAJ MEENA
SCIENTIST 'B' (MED), BIS

Bureau of Indian Standards

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower-1, 6 th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	{ 2821 8093

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